

What's new in pediatric  
emergency medicine  
*Top ten articles 2013*

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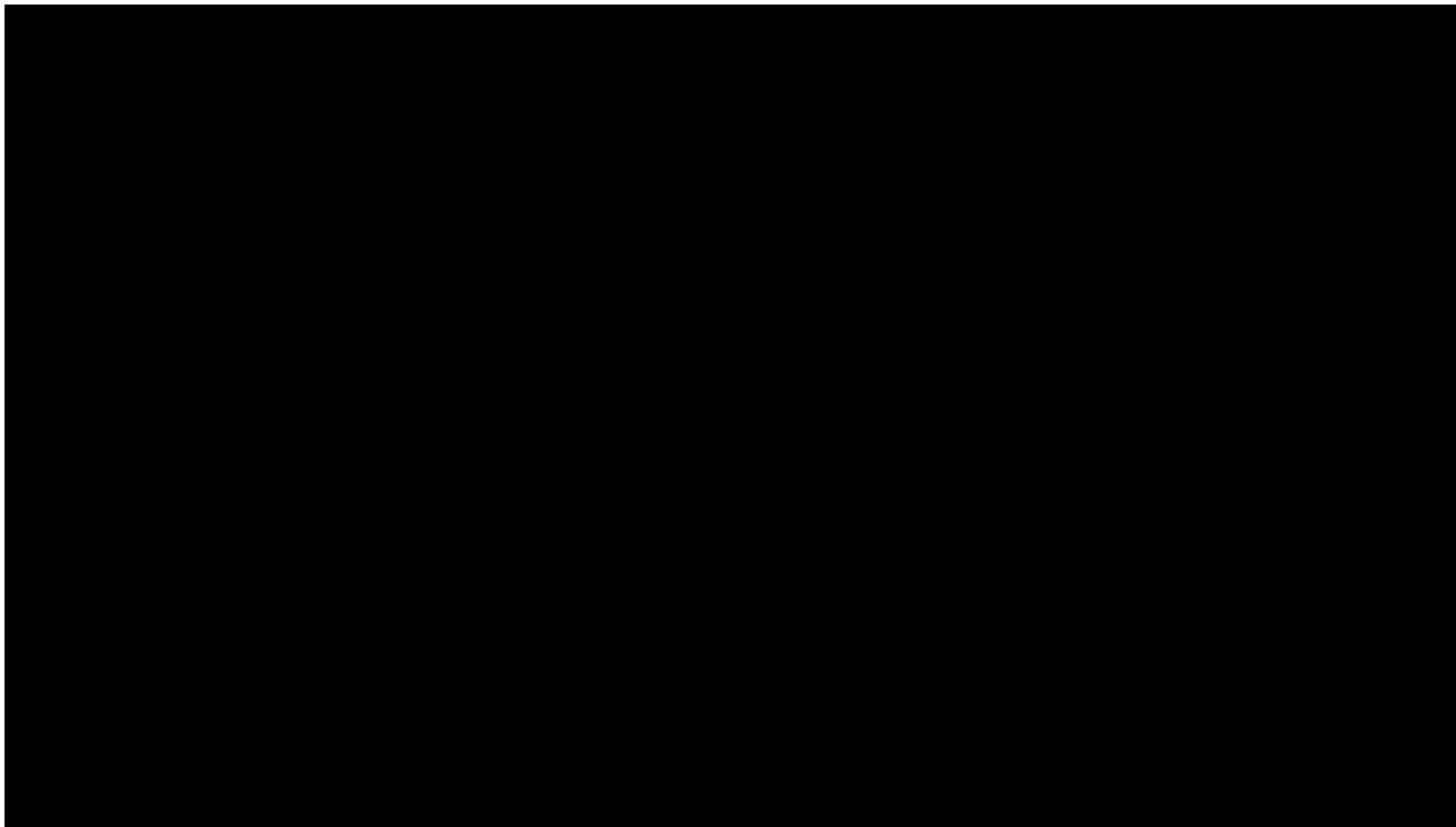
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# Disclosures

- I don't own a Harley
- I don't own a Mercedes Benz



# Awareness test



# # 1 How frequently do pediatric emergency medicine physicians perform critical procedures?

- Retrospective study from Cincinnati
- One of the busiest Peds ER in the US
- Over 120,000 visits a year
- Looked at the critical care procedure experience of their pediatric EM MD's

# Results

- 261 critical care procedures in 194 resuscitations in a one year period (.2% of their patients)
- 147 of these procedures were intubation
- Of note:
  - 63% of the PEM physicians did not perform a single intubation
  - Median procedures for PEM fellows was 3

**Table 1.** Critical procedures performed during 194 pediatric ED patient resuscitations during 12 months.

Procedure	Resuscitation Type		
	Medical (n=147)	Trauma (n=47)	Total (n=194)
Orotracheal intubation	114	33	147
Intraosseous line placement	32	9	41
Pharmacologic cardioversion	23	0	23
Tube thoracostomy	6	12	18
Central venous line placement	9	6	15
Needle thoracostomy	2	7	9
Electrocardioversion	6	0	6
Defibrillation	1	0	1
Pericardiocentesis	0	1	1
<b>Total</b>	193	68	261



**Table 2.** Pediatric emergency medicine faculty (n=41) exposure to critical procedures during 12 months.

Procedure	Performance		
	Median	Range	Faculty Performing at Least 1, %
Any critical procedure	0	0-6	39
Orotracheal intubation	0	0-5	37
Intraosseous line placement	0	0-2	20
Central venous line placement	0	0-1	5
Needle thoracostomy	0	0	0
Tube thoracostomy	0	0-1	2
Pharmacologic cardioversion	*	*	*
Electrocardioversion	*	*	*
Defibrillation	*	*	*
Pericardiocentesis	0	0	0

\* Credit was not assigned to an individual provider for performance of the procedure because cardioversion and defibrillation in our setting are carried out by a multidisciplinary team, with the physician's primary role focusing on cognitive aspects such as timing and delivery of medications or energy. We report supervision only for these procedures.



# Importance of study

- Trainees won't learn skill by just exposure in large pediatric emergency department
- Attendings are at risk to have skill deterioration
- This study heightens awareness that we need to be giving more emphasis to simulation training for trainees and skill retention
- PEM physicians face same problem as paramedics and adult EM physician – on a per person basis/don't see that many sick kids
- Realize that these procedures can cause greater harm if not properly

# Bottom line

- You need simulation equipment wherever you are to keep resuscitation skills up in pediatrics

## # 2 Skull fracture: Trends in Management in US pediatric emergency departments

- Retrospective multicenter study of children < 19 years
- Looked at rates of admission, neurosurgery procedures, length of hospitalization, repeat CT scans, and financial costs

# Results

- 78% were hospitalized
- 85% discharged in 1 day
- 95% discharged in 2 days
- 47 patients had a repeat CT
- 1 child had a neurosurgical procedure
- Hospital costs \$2,064 average for admitted patients
- Discharged patients \$619

# Results

- None of these children needed neurosurgical intervention
- This study supports that it ok to send child home with a skull fracture that has
  - A negative CT
  - No concern of child abuse

# Skull fractures – need to admit?

- 846 children with skull fractures discharged from ER

# Study significance

- Brings into question if these children need admission
- Definitely more expensive to admit
- Are we practicing evidence based medicine?
- Gives more evidence that pediatric patients with isolated skull fractures do not need to be admitted



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# # 3 Bronchiolitis treatment – fixed vs on demand breathing treatments?

- Multicenter trial looking at infants hospitalized with bronchiolitis
- Looked at 2 questions
- 1<sup>st</sup> – Is racemic epi aerosol better than saline?
- 2<sup>nd</sup> – is fixed schedule for treatments better than on demand?

# Results

- Racemic epi no better than saline
- On demand schedule better than fixed schedule

# Study significance

- Infants with less “handling” had shorter length of stay
- Supports “minimal handling” management

## # 4 Wound packing, can you skip?

- Randomized trial of 57 subjects who received either packing or no packing after Incision and drainage
- Reassessment by masked observer at 48 hours
- Failure defined as major
  - Repeat I&D
  - Re-exploration
- Failure defines as minor
  - Change in antibiotics
  - Need for repacking
  - Repeat visit

# Results wound packing

- Failure rates similar
- Pain score similar



# Study significance

- Supports other studies that packing doesn't improve outcome in abscesses < 5 cm
- Other studies have demonstrated packing is more painful
- Packing makes follow up more difficult

# # 5 The Mercy Tape: Better than Broselow??

- Comparison of the Broselow tape to the 2-D and 3-D Mercy Tape to estimate pediatric weights in 624 children
- Mercy Tape measures mid-humerus circumference and  $\frac{1}{2}$  humerus length to determine body weight
- Advantages of Mercy Tape
  - Factors in extremes of weight
  - Only need arm
  - Works in patients over 145 cm (4 feet 9 inches) upper limit of Broselow

# Study results

- Mercy tape out performed Broselow
- The Broselow tape had a mean error difference of 1 kg greater than the Mercy tape
- 209 (33%) Children in the study were excluded from the Broselow analysis because they were too tall

# Study significance

- Good illustration of never stop trying to make a better device
- Mercy tape can be used in wider range of children

## #6 Ultrasound guidance for difficult peripheral IV access

- Review of 7 trials comparing placement of IV's in 300 adults and children with and without ultrasound

# Ultrasound study results

- Higher success rate with ultrasound 79% vs 62% (without)
- No difference in number of sticks or time to successful cannulation

# Ultrasound study significance

- Can be useful tool in improving success rates of obtaining peripheral IV access in difficult cases
- But to use you have to
  - Have a machine
  - Learn and practice technique



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# #7 Suicide contagion among adolescents

- Suicide attempts and deaths are on the rise
- Does exposure to a schoolmate or someone a teen personally knows increase the likelihood of suicide
- Study of 17,000 Canadian youths

# Study results

- After controlling for age, sex, SES, prior depression and anxiety, and substance abuse
- The risk for a 14-15 year old committing suicide was 4 times greater when exposed to someone else who committed suicide than someone who had not

# Significance of study

- Parents, schools, and care providers need to be aware of the impact of having a teen be exposed to someone who commits suicide

# # 8 Infant colic and migraines: are they related?

- Large case control study
- Compared children (n=208) with migraines being seen by a pediatric neurologist to children in an ER being treated for minor injuries (471)

# Study results

- Children with migraines were 6.6 times more likely to have experience infant colic than patients without migraines
- Association was specific for migraines, not found with tension headaches



# Study significance

- Problem of colic may not end with infancy!
- Brings question of whether tylenol or other pain treatment might help in infant colic

# # 9 Bedside ultrasound prior to skin abscess drainage

- Looked at bedside ultrasound use in patients with soft tissue infections
- Studied 400 children and adults with soft tissue infections

# Ultrasound study results

- 159 patients without a clinically evident abscess (no drainage or fluctuance)
- Ultrasound better than clinical evaluation
- Ultrasound sensitivity 78% vs clinical 44%
- Ultrasound specificity 61% vs 42% clinical

# Study significance

- Ultrasound can be a useful tool in deciding whether to do an incision and drainage of a soft tissue abscess when it is not draining and fluctuance can not be determined

# #10 Hands free cell phones while driving? Are they safe?

- Psychologist David Strayer of the University of Utah studied drivers using devices that used speech recognition technology while driving
- Hands were still on the wheel and eyes on the road
- Drivers still had a high level of cognitive distraction



# References

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- [6 Egan G, Healy D, O'Neill H, et al. Ultrasound guidance for difficult peripheral venous access: systematic review and meta-analysis. Emerg Med J 2013; 30:521.](#)
- [7 Swanson SA, Colman I. Association between exposure to suicide and suicidality outcomes in youth. CMAJ 2013; 185:870.](#)



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- **# 9** [Marin JR, Dean AJ, Bilker WB, et al. Emergency ultrasound-assisted examination of skin and soft tissue infections in the pediatric emergency department. Acad Emerg Med 2013; 20:545.](#)
- **#10** <http://articles.latimes.com/2013/jun/12/science/la-sci-sn-hands-free-phone-driving-aaa-20130612>